

We claim:

1 1. A method for communicating between a first device and a second device, wherein the
2 communication occurs across a fabric and the first device is coupled to the fabric by a first
3 gateway and the second device is coupled to the fabric by a second gateway, the method
4 comprising:
5 adjusting, at the first gateway, upon receipt of a first device readiness signal a first device
6 readiness indicator to indicate an increase in a number of frames the first device is ready to
7 accept;
8 sending, from the first gateway to the second gateway, a first gateway readiness signal,
9 the first gateway readiness signal indicative of an increase in a number of frames the first
10 gateway is ready to accept;
11 receiving, at an input buffer of the first gateway from the second gateway, a first device
12 frame;
13 sending, from the first gateway to the first device, the first device frame when the first
14 device readiness indicator indicates that the first device is ready to accept the first device frame;
15 and
16 adjusting, at the first gateway, the first device readiness indicator upon sending the first
17 device frame to the first device to indicate a decrease in the number of frames the first device is
18 ready to accept.

1 2. The method of claim 1, further comprising forwarding the received first device readiness
2 signal to the second gateway.

1 3. The method of claim 1, wherein adjusting the first device readiness indicator to indicate
2 an increase includes incrementing a counter.

1 4. The method of claim 1, wherein adjusting the first device indicator to indicate a decrease

2 includes decrementing a counter.

1 5. The method of claim 1, wherein the first gateway readiness signal is sent to the second
2 gateway without waiting for receipt of the first device readiness signal.

1 6. The method of claim 1, further comprising:
2 retrieving a value from a readiness signal register; and
3 sending from the first gateway to the second gateway a number of first gateway readiness
4 signals based on the value retrieved.

1 7. The method of claim 1, further comprising:
2 receiving, at the first gateway, a second gateway readiness signal indicative of an
3 increase in a number of frames the second gateway is ready to accept; and
4 adjusting a second gateway readiness indicator upon receipt of the second gateway
5 readiness signal to indicate an increase in the number of frames the second gateway is ready to
6 accept.

1 8. The method of claim 7, further comprising, adjusting, at the first gateway, the second
2 gateway readiness indicator, upon sending to the second gateway a second device frame received
3 from the first device, to indicate a decrease in the number of frames the second gateway is ready
4 to accept.

1 9. A method for communicating between a first communication device and a second
2 communication device, wherein the communication occurs across a fabric and the first device is
3 coupled to the fabric by a first gateway and the second device is coupled to the fabric by a
4 second gateway, the method comprising, the method comprising:
5 sending, from the first gateway to the first device, a readiness signal;
6 receiving, at the first gateway from the first device, a second device frame in response to
7 the readiness signal;
8 adjusting, at the first gateway, a second gateway readiness indicator, upon receipt of a
9 second gateway readiness signal from the second gateway, to indicate an increase in a number of

10 frames the second gateway is ready to accept;
11 sending, from the first gateway to the second gateway, the second device frame when the
12 second gateway readiness indicator indicates that the second gateway is ready to accept the
13 second device frame;
14 adjusting, at the first gateway, the second gateway readiness indicator, upon sending one
15 the second device frame, to indicate a decrease in the number of frames the second gateway is
16 ready to accept.

- 1 10. The method of claim 9, further comprising:
2 storing, at the second gateway, a value indicative of a number of second device frames
3 that the second gateway will accept;
4 loading the value into the second gateway readiness indicator.
11. The method of claim 9, wherein adjusting the second gateway readiness indicator to
indicate an increase includes incrementing a counter.
12. The method of claim 9, wherein adjusting the second gateway readiness indicator to
indicate a decrease includes decrementing a counter.
13. A method for communicating between a first communication device and a second
communication device, wherein the communication occurs across a fabric and the first device is
coupled to the fabric by a first gateway and the second device is coupled to the fabric by a
second gateway, the method comprising:
adjusting, at a first gateway, a first device readiness indicator, upon receipt of a first
device readiness signal, to indicate an increase in a number of frames the first device is ready to
accept;
receiving, at an input buffer of the first gateway from the second gateway, a first device
frame;
sending, from the input buffer of the first gateway, the first device frame when the first
device readiness indicator indicates that the first device is ready to accept the first device frame;
sending, from the first gateway to the second gateway, a readiness signal when free space

13 in the input buffer is above a threshold;
14 adjusting, at the first gateway, a first gateway readiness indicator, when the first device
15 frame enters the input buffer, to indicate a decrease in a number of frames the first gateway is
16 ready to accept; and
17 adjusting the first device readiness indicator upon the sending the first device frame to the
18 first device to indicate a decrease in the number of frames the first device is ready to accept.

1 14. The method of claim 13, further comprising storing a readiness signal for later transmittal
2 to the second gateway if free space in the input buffer is less than a threshold and the first device
3 frame leaves the input buffer.

1 15. The method of claim 13, further comprising:
2 sending, from the first gateway to the second gateway, a first gateway readiness signal
3 indicative of an increase in a number of frames the first gateway is ready to accept; and
4 adjusting the first gateway readiness indicator when the first gateway readiness signal is
5 sent to the second gateway to indicate an increase in the number of frames the first gateway is
6 ready to accept.

1 16. The method of claim 13, wherein adjusting the first gateway readiness indicator to
2 indicate an increase includes incrementing a counter.

1 17. The method of claim 13, further comprising:
2 retrieving a value from a readiness signal register; and
3 sending from the first gateway to the second gateway a number of first gateway readiness
4 signals based on the value retrieved.

1 18. The method of claim 13, wherein adjusting the first gateway readiness indicator to
2 indicate a decrease includes decrementing a counter.

1 19. The method of claim 13, wherein the readiness signal is sent to the second gateway if free
2 space in the input buffer is above a threshold and the first device frame enters the input buffer.

1 20. A first gateway for communication between a first device and a second device, the first
2 gateway coupling the first device to an intermediate network to which the second device is
3 coupled by way of a second gateway, the first gateway comprising:
4 a first device readiness indicator that is to be adjusted upon receipt of a first device
5 readiness signal to indicate an increase in a number of frames the first device is ready to accept;
6 a readiness signal generator that is to send a first gateway readiness signal to the second
7 gateway, the first gateway readiness signal is indicative of an increase in a number of frames the
8 first gateway is ready to accept;
9 an input buffer that is to receive a first device frame from the second gateway and that is
10 to send the first device frame to the first device when the first device readiness indicator
11 indicates that the first device is ready to accept the first device frame; and
12 wherein the first device readiness indicator is to be adjusted, upon sending the first device
13 frame to the first device, to indicate a decrease in the number of frames the first device is ready
14 to accept.

1 21. The gateway of claim 20, wherein the first device readiness indicator is a counter that is
2 incremented upon receipt of the first device readiness signal.

1 22. The gateway of claim 20, wherein the first device readiness indicator is a counter that is
2 decremented upon sending the first device frame to the first device.

1 23. The gateway of claim 20, further comprising:
2 a readiness signal register that is to store a value; and
3 wherein the readiness signal generator is to retrieve the value stored in the readiness
4 signal register and to generate a number of first gateway readiness signals based on the value
5 stored in the signal register.

1 24. The gateway of claim 20, further comprising:
2 a readiness signal register that is to store a value indicative of a number of frames that the
3 second gateway will accept; and
4 a gateway readiness indicator is to be loaded with the value stored in the readiness signal

5 register.

1 25. The gateway of claim 20, further comprising:

2 a gateway readiness indicator that is to receive from the second gateway a second
3 gateway readiness signal, the gateway readiness indicator upon receipt of the second gateway
4 readiness signal is to be adjusted to indicate an increase in a number of frames the second
5 gateway is ready to accept;

6 an output buffer that is to send a second device frame received from the first device to the
7 second gateway; and

8 wherein the gateway readiness indicator is adjusted upon the sending of the second
9 device frame to indicate a decrease in the number of frames the second gateway is ready to
10 accept.

11 26. A first gateway for communication between a first device and a second device, the first
12 gateway coupling the first device to an intermediate network to which the second device is
13 coupled by way of a second gateway, the first gateway comprising:

14 a readiness signal generator that is to send a readiness signal to the first device;

15 an output buffer that is to receive a second device frame from the first device in response
to the readiness signal;

1 a second gateway readiness indicator that is to be adjusted upon receipt of a second
2 gateway readiness signal from the second gateway to indicate an increase in a number of frames
3 the second gateway is ready to accept;

4 wherein the output buffer is to send the second device frame to the second gateway when
5 the second gateway readiness indicator indicates that the second gateway is ready to accept the
6 second device frame; and

7 wherein the second gateway readiness indicator is to be adjusted upon sending the second
8 device frame to the second gateway to indicate a decrease in the number of frames the second
9 gateway is ready to accept.

1 27. The gateway of claim 26, further comprising:

2 a readiness signal register that stores a value indicative of a number of second device

frames that the second gateway will accept; and

wherein the gateway readiness indicator is to be loaded with the value stored in the readiness signal register.

28. The gateway of claim 26, wherein the gateway readiness indicator is a counter that is to be incremented upon the receipt of the second gateway readiness signal.

29. The gateway of claim 26, wherein the gateway readiness indicator is a counter that is to be decremented upon sending the second device frame to the second gateway.

30. A first gateway for communication between a first device and a second device, the first gateway coupling the first device to an intermediate network to which the second device is coupled by way of a second gateway, the first gateway comprising:

a first device readiness indicator adjusts, upon receipt of a first device readiness signal from the first device, an indication of an increase in a number of frames the first device is ready to accept;

a readiness signal generator sends a first gateway readiness signal to the second gateway, the first gateway readiness signals indicative of an increase in a number of frames the first gateway is ready to accept;

an input buffer receives a first device frame from the second gateway and sends the first device frame to the first device if the first device readiness indicator indicates that the first device is ready to accept the first device frame; and

wherein the first device readiness indicator is adjusted upon sending the first device frames to the first device to indicate a decrease in the number of frames the first device is ready to accept.

31. A first gateway for communication between a first device and a second device, the first gateway coupling the first device to an intermediate network to which the second device is coupled by way of a second gateway, the first gateway comprising:

a first device readiness indicator that is to be adjusted upon receipt of a first device readiness signal to indicate an increase in a number of frames the first device is ready to accept;

an input buffer that is to receive a first device frame from a second gateway and that is to send the first device frame to the first device when the first device readiness indicator indicates that the first device is ready to accept the first device frame;

a first readiness signal generator that is to send a first gateway readiness signal to the second gateway when free space in the input buffer is above a threshold;

a first gateway readiness indicator that is to be adjusted when the first device frame enters the input buffer to indicate a decrease in a number of frames the first gateway is ready to accept; and

wherein the first device readiness indicator is to be adjusted, upon the sending of the first device frame to the first device, to indicate a decrease in the number of frames the first device is ready to accept.

32. The first gateway of claim 31, further comprising:

a second readiness signal generator that is to send first gateway readiness signals to a second gateway, the first gateway readiness signals indicative of a number of frames the first gateway is ready to accept; and

wherein the first gateway readiness indicator is adjusted when the first gateway readiness signals are sent to the second gateway to indicate an increase in the number of frames the first gateway is ready to accept.

33. The first gateway of claim 31, further comprising:

a readiness signal register that stores a value indicative of a number of first device frames that the first gateway will accept; and

wherein the first gateway readiness indicator is to be loaded with the value stored in the readiness signal register.

34. The first gateway of claim 31, wherein the first gateway readiness indicator is a counter that is to be incremented upon receipt of the first gateway readiness signals.

35. The gateway of claim 31, wherein the first gateway readiness indicator is a counter that is to be decremented upon receipt of one of the first device frames.

1 36. The first gateway of claim 31, wherein the first readiness signal generator is to store the
2 first gateway readiness signal for later transmittal to the second gateway, when free space in the
3 input buffer is below a threshold and the first device frame leaves the input buffer.

1 37. The first gateway of claim 31, wherein the first readiness signal generator is to send the
2 first gateway readiness signal to the second gateway, when free space in the input buffer is above
3 a threshold and the first device frame enters the input buffer.

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